

charge any additional fee required for the extension, or credit any overpayment, to Deposit Account 06-1205.

In response to the Official Action dated May 17, 2002, please amend the above-identified application as follows pursuant to 37 C.F.R. § 1.116:

IN THE CLAIMS:

Please AMEND claims 1 and 6, and ADD new claims 19-28 as follows. A marked-up copy of the claims showing the changes made thereto is attached in Appendix A. For the Examiner's convenience, all pending claims are reproduced below:

1. (Twice Amended) A scan type exposure apparatus wherein a pattern of an original is lithographically transferred to a substrate sequentially while the original and the substrate are scanningly moved relative to exposure light, said apparatus comprising:

a photodetector disposed in an illumination optical system and at a position optically conjugate with the original, for detecting a quantity of light illuminating the original;

storing means for storing correction information with respect to the output of said photodetector, in relation to different positions of the original to be illuminated with the exposure light; and

a correction device for receiving correction information stored in said storage means and correcting, in the lithographic pattern transfer, the output of said photodetector by use of the stored correction information.

2. An apparatus according to Claim 1, wherein the correction information concerns information corresponding to a light quantity of reflection light at each of different positions of the original illuminated with the exposure light.

5. (Amended) An exposure apparatus for lithographically transferring a pattern of an original onto a substrate, said apparatus comprising:

a first photodetector, disposed at a position optically conjugate with the original, for detecting information regarding the original and for producing an output;

a second photodetector for detecting reflection light from the original and for producing an output;

storing means for storing correction information with respect to the output of said first photodetector in relation to different positions of the original, on the basis of the outputs of said first and second photodetectors; and

a correction device receiving the correction information stored in said storing means and for correcting, in the lithographic pattern transfer, the output of said first photodetector by use of the correction information.

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6. (Twice Amended) An exposure apparatus, comprising:  
an illumination optical system for illuminating an original with exposure light output from a light source;

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a projection optical system for projecting a pattern of the original,  
illuminated by the illumination optical system, onto a substrate;  
a photodetector disposed in said illumination optical system and at a  
position optically conjugate with the original, for detecting a quantity of light illuminating the  
original;  
control means for controlling the exposure light output from the light  
source on the basis of the output of the photodetector; and  
correcting means for reducing an influence of reflection light from the  
original, on the basis of the output of the photodetector as the original is illuminated by the  
illumination optical system

7. (Amended) An apparatus according to Claim 6, wherein said correcting means operates to reduce or remove the influence of the reflection light, while referring to the output of said photodetector in a state in which the original is illuminated by said illumination optical system and in which there is no reflection light coming from the original and directed back to said photodetector.

8. (Amended) An apparatus according to Claim 6, wherein said correcting means includes reflection light detecting means for detecting reflection light from the original, as illuminated by said illumination optical system, and being directed back to said illumination optical system, and wherein said correcting means operates to reduce or remove the influence of

the reflection light, while referring to a result of the detection by said reflection light detecting means.

9. (Amended) An apparatus according to Claim 6, wherein said exposure apparatus is a scan type exposure apparatus in which exposure is performed while the original and the substrate are scanningly moved relative to the exposure light from said illumination optical system and relative to said projection optical system, wherein said correcting means is operable to reduce or remove any influence of the reflection light at each movement position in the scan motion, and said control means is operable to control the exposure light output from said light source on the basis of the output of said photodetector, with the influence of the reflection light at each of the movement positions in the scan motion being reduced or removed.

10. (Amended) An apparatus according to Claim 7, wherein said exposure apparatus is a scan type exposure apparatus in which exposure is performed while the original and the substrate are scanningly moved relative to the exposure light from said illumination optical system and relative to said projection optical system, wherein said light source comprises a discharge lamp, said correcting means operates so that (i) outputs of said photodetector in relation to each movement position are obtained beforehand while an applied electric power to said discharge lamp is kept constant and while the scan motion is performed at a speed lower than an ordinary scan speed, (ii) during the procedure in (i), the output of said photodetector in a state in which there is no light coming from the original and directed to said photodetector is

obtained, (iii) in actual exposure of the substrate, at a start of the scan motion, an output of said photodetector in a state in which there is no reflection light coming from the original and directed back to said photodetector is obtained, and (iv) at each of the movement positions in the scan motion, any influence of reflection light is removed or reduced on the basis of the output in (iv) and the outputs having been obtained beforehand, and said control means controls, at each of the movement positions in the scan motion, the exposure light output from said light source on the basis of an output of said photodetector with the influence of reflection light being removed or reduced.

11. (Amended) An apparatus according to Claim 8, wherein said exposure apparatus is a scan type exposure apparatus in which exposure is performed while the original and the substrate are scanningly moved relative to the exposure light from said illumination optical system and relative to said projection optical system, wherein said light source comprises a discharge lamp, said correcting means operates so that (i) outputs of said photodetector and outputs of said reflection light detecting means in relation to each movement position are obtained beforehand while an applied electric power to said discharge lamp is kept constant and while the scan motion is performed at a speed lower than an ordinary scan speed, and (ii) in actual exposure of the substrate, at each of the movement positions in the scan motion, any influence of reflection light is removed or reduced on the basis of the output of said photodetector and a result of detection by said reflection light detecting means, and said control means controls, at each of the movement positions in the scan motion, the output of said light

source on the basis of an output of said photodetector with the influence of reflection light being removed or reduced.

15. (Amended) An apparatus according to Claim 2, wherein the correction information includes information corresponding to the light quantity of reflection light from the substrate.

18. An apparatus according to Claim 5, wherein the correction information includes information corresponding to the light quantity of reflection light from the substrate.

19. (New) A scan type exposure apparatus wherein a pattern of an original is lithographically transferred to a substrate sequentially while the original and the substrate are scanningly moved relative to exposure light, said apparatus comprising:

a photodetector disposed in an illumination optical system, for detecting a quantity of light illuminating the original;

storing means for storing correction information with respect to an output of said photodetector, in relation to different positions of the original to be illuminated with the exposure light; and

a correction device for receiving information stored in said storage means and correcting, in the lithographic pattern transfer, the output of said photodetector by use of the stored information.

20. (New) An apparatus according to Claim 19, wherein the correction information concerns information corresponding to a light quantity of reflection light at each of different positions of the original illuminated with the exposure light.

21. (New) An apparatus according to Claim 20, wherein the correction information includes information corresponding to the light quantity of reflection light from the substrate.

22. (New) An exposure apparatus, comprising:

- an illumination optical system for illuminating an original with exposure light output from a light source;
- a projection optical system for projecting a pattern of the original, illuminated by the illumination optical system, onto a substrate;
- a photodetector disposed in said illumination optical system, for detecting a quantity of light illuminating the original;
- control means for controlling the exposure light output from the light source on the basis of the output of the photodetector; and
- correcting means for reducing an influence of reflection light from the original, on the basis of the output the photodetector as the original is illuminated by the illumination optical system.

23. (New) An apparatus according to Claim 22, wherein said correcting means operates to reduce or remove the influence of the reflection light, while referring to the output of said photodetector in a state in which the original is illuminated by said illumination optical system and in which there is no reflection light coming from the original and directed back to said photodetector.

24. (New) An apparatus according to Claim 22, wherein said correcting means includes reflection light detecting means for detecting reflection light from the original, as illuminated by said illumination optical system, and being directed back to said illumination optical system, and wherein said correcting means operates to reduce or remove the influence of the reflection light, while referring to a result of the detection by said reflection light detecting means.

25. (New) An apparatus according to Claim 22, wherein said exposure apparatus is a scan type exposure apparatus in which exposure is performed while the original and the substrate are scanningly moved relative to the exposure light from said illumination optical system and relative to said projection optical system, wherein said correcting means is operable to reduce or remove any influence of the reflection light at each movement position in the scan motion, and said control means is operable to control the exposure light output from said light source on the basis of the output of said photodetector, with the influence of the reflection light at each of the movement positions in the scan motion being reduced or removed.



26. (New) An apparatus according to Claim 23, wherein said exposure apparatus is a scan type exposure apparatus in which exposure is performed while the original and the substrate are scanningly moved relative to the exposure light from said illumination optical system and relative to said projection optical system, wherein said light source comprises a discharge lamp, said correcting means operates so that (i) outputs of said photodetector in relation to each movement position are obtained beforehand while an applied electric power to said discharge lamp is kept constant and while the scan motion is performed at a speed lower than an ordinary scan speed, (ii) during the procedure in (i), the output of said photodetector in a state in which there is no light coming from the original and directed to said photodetector is obtained, (iii) in actual exposure of the substrate, at a start of the scan motion, an output of said photodetector in a state in which there is no reflection light coming from the original and directed back to said photodetector is obtained, and (iv) at each of the movement positions in the scan motion, any influence of reflection light is removed or reduced on the basis of the output in (iv) and the outputs having been obtained beforehand, and said control means controls, at each of the movement positions in the scan motion, the exposure light output from said light source on the basis of an output of said photodetector with the influence of reflection light being removed or reduced.

27. (New) An apparatus according to Claim 24, wherein said exposure apparatus is a scan type exposure apparatus in which exposure is performed while the original and the substrate are scanningly moved relative to the exposure light from said illumination

optical system and relative to said projection optical system, wherein said light source comprises a discharge lamp, said correcting means operates so that (i) outputs of said photodetector and outputs of said reflection light detecting means in relation to each movement position are obtained beforehand while an applied electric power to said discharge lamp is kept constant and while the scan motion is performed at a speed lower than an ordinary scan speed, and (ii) in actual exposure of the substrate, at each of the movement positions in the scan motion, any influence of reflection light is removed or reduced on the basis of the output of said photodetector and a result of detection by said reflection light detecting means, and said control means controls, at each of the movement positions in the scan motion, the output of said light source on the basis of an output of said photodetector with the influence of reflection light being removed or reduced.

28. (New) An apparatus according to Claim 21, wherein the correction information includes information corresponding to the light quantity of reflection light from the substrate.

#### REMARKS

Claims 1, 2, 5-11, 15 and 18-28 are presented for consideration. Claims 1 and 6 have been amended to define still more clearly what Applicant regards as his invention, in terms which distinguish over the art of record. Claims 19-28 have been added to assure Applicant of the full measure of protection to which he deems himself entitled. Claims 1, 5, 6, 19 and 22 are the only independent claims.